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Submitted Jan 22, 2003; accepted Mar 26, 2003.

DISCUSSION

Dr Thomas S. Huber (Gainesville, Fla). I would like to lead off the discussion, and I must confess the authors scooped me on a few of my questions.

The authors report a retrospective review of their access practice before and after the introduction of preoperative imaging protocol including duplex ultrasound and venography. They report their native fistula utilization rate increased from approximately 60% to 70% after the introduction of the protocol. However, the rate of mature fistulas suitable for dialysis access decreased from approximately 70% to 60%. Based upon these results the authors concluded that the benefits of extensive preoperative imaging as part of the evaluation for patients referred for dialysis access are overstated, although they do concede that they will continue to use these modalities in their practice.

I laud the authors' efforts to challenge several recent publications extolling the benefits of preoperative imaging prior to access surgery, and I recommend their well-written manuscript to the audience. However, I urge their results and conclusions be interpreted with some caution, and I fear that the manuscript may have the unintentional consequence of increasing the placement of prosthetic arteriovenous fistulae. My specific concerns are twofold. First, although the authors stated their purpose was to examine the success of access procedures performed after the introduction of an imaging protocol, approximately one third of the patients underwent preoperative duplex ultrasound in the historical control group and only two thirds underwent preoperative duplex imaging after initiation of the protocol. A more rigorous evaluation of the preoperative imaging would have compared physical examination alone to the various imaging modalities, and ideally would have been performed in a prospective randomized fashion.

Second, the authors' native fistula rate prior to the initiation of the study exceeded 60% and was well above the targets established by the NFK-DOQI guidelines, in stark contrast to the 17% nationwide rate reported in the Dartmouth Atlas. Additional preoperative imaging may not prove very beneficial to identify good native fistula options in this setting, because their pre-study approach was so effective. In light of these concerns, I would contend that the study is an incrimination of the authors' criteria for native fistula rather than the imaging modalities themselves.

I have three questions for the authors. First, the reported fistula maturation rates were relatively low, given the wide range reported in the literature. Have you examined or documented the various potential reasons why the fistula failed to mature? Indeed, there are multiple potential causes, including failure of the fistula to dilate, fistula stenosis, central vein occlusions, inadequate arterial inflow, and hand ischemia requiring ligation.

Second, the 2.5 mm criterion used to determine whether a vein was suitable for a native fistula seemed relatively aggressive, and may have contributed to the low fistula maturation rate. In our own practice, we have used a 3 mm cutoff, but have been anecdotally impressed that even this may be too aggressive. It has been our experience that bigger clearly is better and that veins with larger diameters translate into better success rates. Did you analyze the impact of vein diameters on the fistula success rate or incorporate this variable into your multivariate analysis?

And last, despite your results, I was impressed by the statement in your conclusions that you will continue to use preoperative duplex imaging. What are your current recommendations to less experienced access surgeons for preoperative evaluation given the NFK-DOQI targets for native fistula utilization?

Dr Sheela Thakor Patel. Thank you, Dr Huber, for your discussion.

If we had an AV fistula that was not maturing by 6 to 8 weeks, we always performed diagnostic imaging to see what the problem was. The most common reason why fistula failed was failure of the veins to dilate or thrombosis, which was most commonly due to stenosis close to the anastomosis. The most common adjunctive procedure that we performed to assist in maturation was angioplasty, which was successful in about 50% of the cases. We only had one case where the documented case of AV fistula failure was an arterial problem, an arterial stenosis.

To address your second question, we did use 2.5 mm vein criteria, based on published studies, and we did not examine the impact of vein diameter in our study. We currently recommend that patients who have visible veins on physical examination, when there is no question of continuity, then those patients do not need to be imaged. Only those patients in whom there is a question of continuity or quality or caliber of the vessels, those patients should get imaging.